11

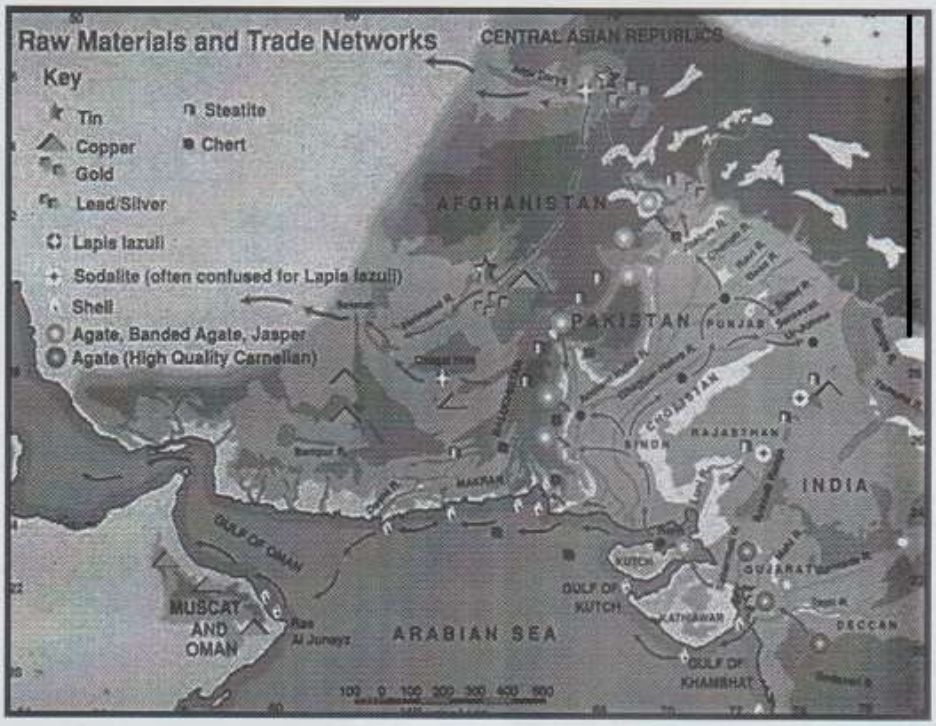
THE ART OF BOAT-BUILDING IN THE INDUS CIVILISATION

Shri. K. V. Ramakrishna Rao
Guest faculty, University of Madras and Visiting faculty, Annamalai University,
Research Scholar, Department of Ancient History and Archaeology, University of Madras, Chennai.

All Illustrations Courtesy : K.V. Ramakrishna Rao

Indus Valley Civilisation, maritime-oriented

The Indus Valley people had been experts in arts, sciences and technologies, as exhibited and proven by their remnant material evidences. The production, manufacture, and distribution of the goods and products amply prove the maritime trade had taken place westward to Arabian countries and beyond. Indus Civilisation and its contemporary civilizations had been depending upon each other and therefore, the movement of goods and services also had been there. That is why Indus seals have been recovered from many places on the coasts of Arabia, Middle East and Eastern Africa. The real movement of people and their vessels is implied with such availability of material evidences.



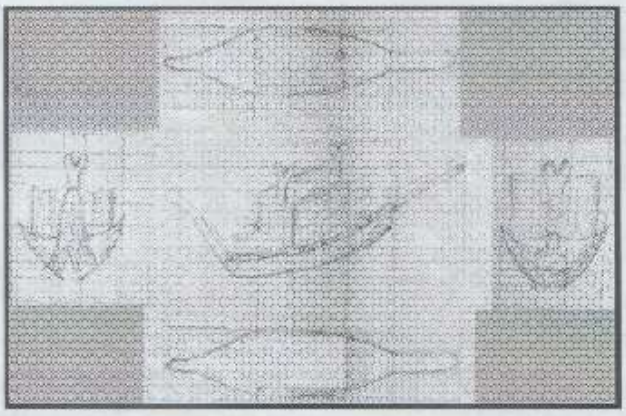
The usage of raw materials, inputs and accessories also points to the fact that the people of c.2250-1950 BCE had land and sea transport connections with the exchange of inputs and finished goods. The mining of gold, silver, copper, lead, lapis lazuli, shell, agate, jasper, carnelian and their distribution to faraway places prove such contacts. Thus, wherever the goods and products were to be transported across the sea, boats and ships had to be used. Here, some scholars argue that there may not have been direct contacts among the civilizations, though indirectly

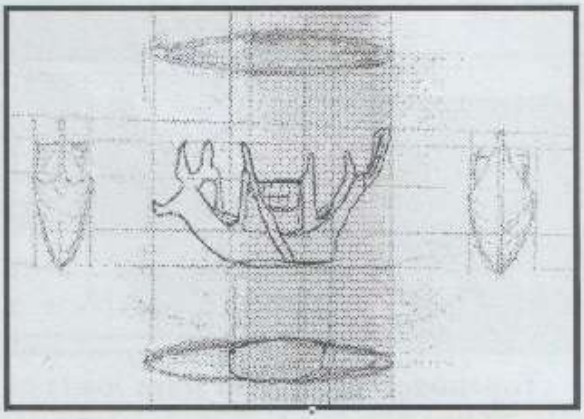
such materials could have been moved through intermediaries. Yet, their movement from one civilization to another has to be accepted in historical perspective. Naturally, the inland, coastal and overseas navigational routes were exploited by the traders and merchants. Thus, boat and ship building were also a part and parcel of the people living in and near the coastal areas.

Why only crude, rough and broken items, figurines and pieces were recovered and not perfect or complete ones, has to be studied carefully. After 3000 to 5000 years, many good samples might have disappeared or been taken away by private collectors and identified differently by art collectors. Thus, it is evident that only available and recovered evidences are studied and the unavailable and not-recovered are not.

The ship and boat models depicted in paintings[1] and sculptures are useful for reconstruction of Indian shipbuilding. The vessels traversing in the Indus river and its tributaries, the Arabian Sea, the West Asian region and back followed the trade winds and accordingly, the design can be understood. Their rough sketches can be made on paper and with them models can be made. With the models, simulated 3-D models can be made with practical dimensions created for testing[2]. The concept and activities of ship breaking also play a role in understanding.

Wayne R. Belcher, A. Keith Turner and Jonathan Mark Kenoyer have attempted to convert the Indus structures into 3D models for analysis[3]. In the same way, such methodology can be extended to the boats and ships also.

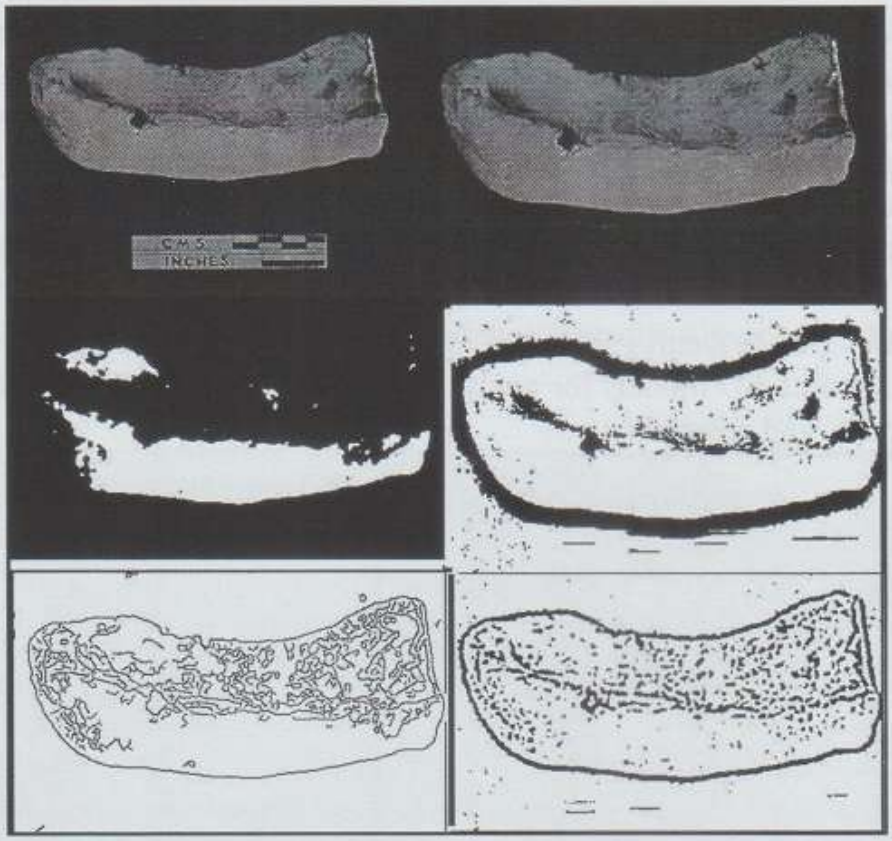




With the available boat and ship models, their photographs are used to convert to line diagrams for simulation purposes. The step-by-step processes of how they are converted is shown with some examples. There are laboratories for simulation, as well as standard charts and technical data for such comparisons, matching and extrapolation. With computer-simulated programmes, they are converted to reality with standard dimensions of wooden samples, and these matched models are put into use for experimental purposes. The floating capacity, displaced water, densities varying from coast to sea, climatic conditions of rough weather and heavy winds, and other factors are studied, noted and recorded. Thus, the water, river or seaworthiness of the vessel can be proven. In other words, the artistic depiction of the boat/ship on the seals and terracotta models is not accidental, but real. Therefore, it is amply clear that the Indus Civilisation boat and shipbuilders had gone into all technical details before making, building, hauling and sailing on the waters.

Absence of evidence is not proof of non-existence of evidence

For historical interpretation, only the recovered pictures found on the seals, literary evidences and simulated data are available. As the literary evidences are well-known and quoted by others, they are not repeated here. With this, it is interpreted that the Indus Civilisation people definitely knew the art of boat and ship building. As nothing comes from a vacuum, the 3000 to 5000 years gap cannot be explained by any historian or historiographer with a restricted scope of history writing. As a prehistoric factor has been converted to proto-historic in the Indus Civilisation context, the advancement of art, science and technology of the people are taken into consideration; definitely, they had achieved such a high status to manufacture, sail and carry out maritime trade[4].

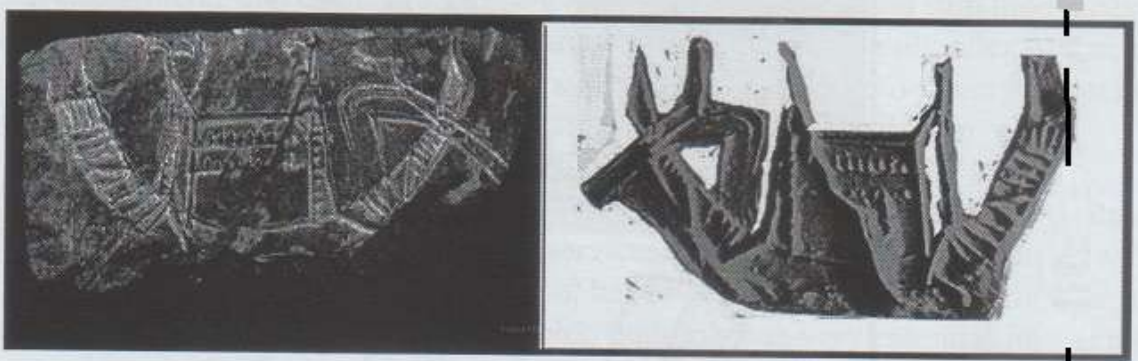


Toy models, boats and ships made of ceramic in the IVC have been recovered at different places. Thus, it is evident that the boats and ships had been dominant in their lives, to be incorporated at the childhood level for learning. The rough, crude or clay models might have been recovered now, as they reveal such characters. However, they have real, practical and constructive shapes, features and characteristics, definitely derived from the actual.

Though, it appears rough and crude, it can be matched with the catamarans that were used in coastal areas. S. R. Rao has pointed out that no real boat remnants of the Indus Civilisation period have been found so far[5].

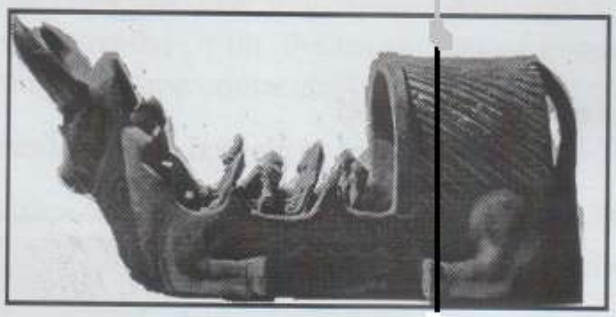
The "cabin-boat" depicted on a seal has attracted many, as it resembles the boats of Egypt and other contemporary civilizations. Moreover, it resembles the "cow boat" ceramic figurine also. The vessel portrayed on this seal is boldly but roughly cut, apparently with a triangular burin, and is seemingly not the work of an experienced seal cutter; hence its interest because,

probably as a consequence of inexperience, the motif is not a stereotypical one. The boat has a sharply upturned prow and stern, a feature which is present in nearly all archaic representations of boats; for example, the same boat appears in early Minoan seals, on the Pre dynastic pottery of Egypt, and on the cylinder seals of Sumer. In the last-mentioned country, this type of boat was used down to Assyrian times. On the ivory knife-handle of Gebel-el-'Arak in the Louvre are depicted ships which bear a very close resemblance to the one on our seal; these and the other scenes on this handle are, indeed, explained by Petrie as not Egyptian, but the product of an Oriental people inspired by Elam and the Tigris region. The converted pictures of "cabin boat" are shown below:



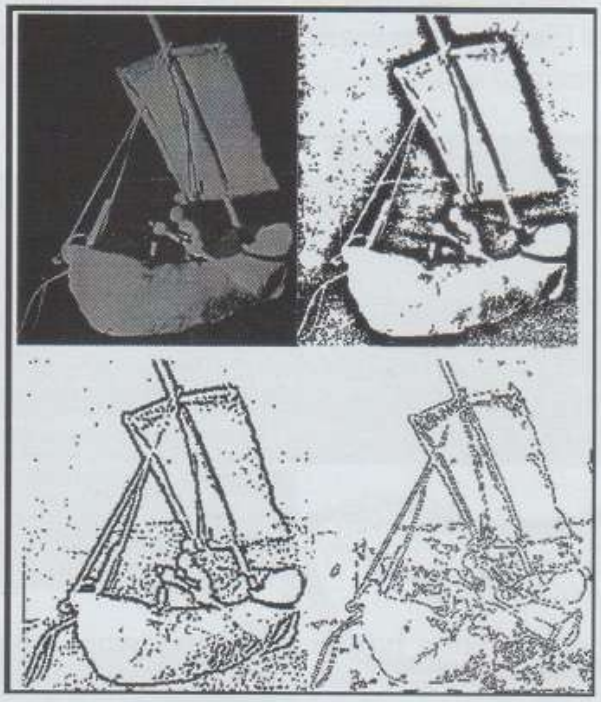
This has been popular and is used even today in the Indus, Arabian sea and Kashmir Dal Lake. It is known as a house-boat.

The "cow-boat" is nothing but a bull in a sitting posture with its legs bent differently, whereas, its top portion has been scooped out to accommodate a cabin, in which a "queen" is sitting on a seat. The eight rowers sitting four each on either side in rowing position clearly suggest that the figurine could be a boat. Actually, it is not known as to whether the figurine has been recovered completely or is a part of the original. The "Cow boat" has been discussed by many Indus-researchers, comparing it with other ancient civilizations as to whether it was a boat, cart or chariot. Massimo Vidale pointed out[6], "……the 'boat' and its figurines resemble (at least superficially) the wooden and ceramic models of Egypt during late 3rd-2nd millennium BC, but there was no previous hint that in the early Harappan or Indus period (the latest centuries of the Regionalization Era, ca. 2800-2600 BC) people made and used similar objects." He also suggests the characteristics of why it is a boat:



- general shape and context of the scene
- presence of the 'cabin'
- absence of wheels, unmistakable in Indus charts
- bull's head located on prow like a figurehead
- decoration on the breast suggesting water plants
- decoration on the outer broadside similar to waves
- general location of the eight 'rowers'
- comparison with early Sumerian iconography

However, he also gives and compares such a narrative with the chariot. As no such provisions are found in the ceramic article, it is considered a boat model. The different pictures of "cow boat" are shown above (LHS). The top view of the "cow-boat" is depicted above (RHS) - here, the position of the rowers can be noted very clearly. Thus, this figurine should be a boat model made of ceramic, imitating the real one. This could have been used by royal ladies. Besides, such boats were also used for maritime trade and carrying goods.



Lothal boat model

S. R. Rao has explained the significance of the Lothal boat model[7].

Five terracotta objects and a painting on a potsherd found at Lothal were identified as three types of ships of which two had sails[8]. Some claim seven terracotta models of boats were recovered by the excavator, but these are, unfortunately, too undistinguished to bear on the question[9].

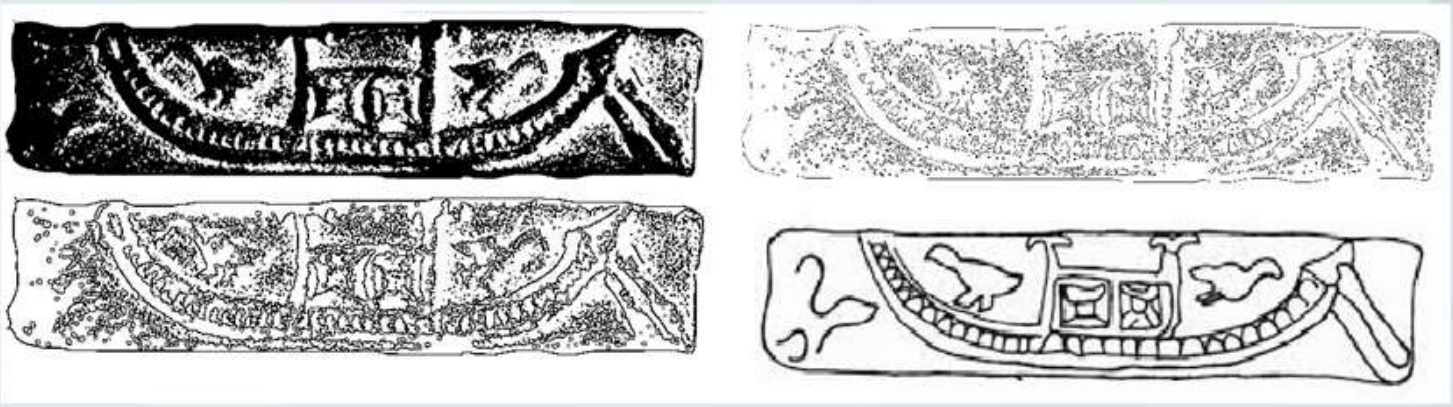
From pre-historic to historic and modern

The prevalence of the sewn-plank technology of Indian Ocean vessels has been noted, researched and recorded by many scholars. With the development of computer applications, even 3-D simulation, reverse engineering and related techniques have also been used by the researchers to remanufacture such boats. In such re-manufacturing processes, the raw materials, parts and other inputs have also been chosen with the comparison and chemical analysis of the available evidences with trial and error methods.

The Indian Ocean "sewn-plank technology" has to be mentioned, included in their re-creational experiments and discussed. Some even mention the boat and ship models depicted in the rock paintings, sculptures, coins etc. Yet, they all could be dated only after Asoka, as Indian history starts only from 3rd century BCE and earlier, it was only proto-history or prehistory. In view of the above study, the following points are submitted as a conclusion.

A comprehensive and comparative study points out the land and sea route contacts which existed then with the exchange of goods and services. In fact, without the inputs, raw materials and other resources, such transactions could not have been possible. Considering the maritime, overseas and water-borne contacts, boat and ship building was very essential for the movement of goods and services. The boat/ship building, breaking and hauling processes vary definitely from civilization to civilization, depending upon the waters, climatic conditions and other manufacturing aspects of the respective people.

The Indus-Harappan-Lothal models thus show variation due to the practical reasons mentioned above. The inland and coastal vessels differ from the sea-going ferries. Although no actual ship or remnant parts of the period have been excavated so far, the movement of goods and services to such faraway distances prove the actual maritime contacts.



References

1. Ramakrishna Rao, K. V., (2018). "Boat-ship depicted in rock-art, stone art and paintings of South India", in *Indian paintings and Arts through Ages*, (Ed.) J. Soundarajan, University of Madras, Pranesh Publishers, Chennai, pp.171-178.
2. Ramakrishna Rao, K. V., (2020). "Boat and ship depicted in the Rock art, sculptures and paintings: Their simulated design, development and application to investigate the Chola Maritime activities", *Proceedings of the South Indian History Congress*, Chidambaram, Tamil Nadu, pp.1090-1098.
3. Wayne R. Belcher, A. Keith Turner and Jonathan Mark Kenoyer, *Harappa in 3D- A powerful New Tool Rebuilds the Past in the Indus Valley*, can be downloaded from here: https://www.harappa.com/sites/default/files/pdf/Kenoyer1999_Harappa in 3D A powerful new tool rebuilds the p.pdf
4. Steve Farmer, *Illiterate Harappans*, https://www.safarmer.com/washstate.pdf_Farmer, Steve, Richard Sproat, and Michael Witzel, (2004). "The collapse of the Indus-script thesis: The myth of a literate Harappan civilization." *Electronic journal of Vedic studies* 11.2: 19-57.
5. Rao, S. R., (1965). "Shipping and Maritime Trade of the Indus people", *Expedition*, Vol.7, Issue no.3, pp.30-36. https://www.penn.museum/documents/publications/expedition/PDFs/7-3/Shipping.pdf
6. Massimo Vidale, (2011). "The lady of the spiked throne - The power of a lost ritual", pp.31-33, https://www.harappa.com/sites/default/files/pdf/Spiked-Throne.pdf
7. Rao, S. R., (1973). *Lothal and the Indus Civilization*, Asia Publishing House, Bombay. p.63. Rao, S. R., (1993)."Missing links in the history of boat building technology of India", *Maine Archaeology*, Vol.4, July, pp.60-67.
8. Rao, S. R., (1985). *Lothal – A Harappan Port Town (1955-62)*, Vol. I, Archaeological Survey of India, New Delhi, pp. 225-226; ....., *Lothal – A Harappan Port Town*, Vol. II, Archaeological Survey of India, New Delhi, p. 505.
9. Leshnik, Lawrence S., and K. H. Junghans., (1968). "The Harappan 'Port' at Lothal: Another View", in *American Anthropologist,* 70.5. pp. 911-922.